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Medicine Bow – Routt National Forests & Thunder Basin National Grassland

Laramie, Wyoming

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Noxious and Invasive Plants Effects Report

Medicine Bow Landscape Vegetation Analysis (LaVA) Project

Medicine Bow National Forest

Albany and Carbon Counties, Wyoming

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Table of Contents

SUMMARY

This report discusses the effects of a proposed landscape scale vegetation management project upon noxious and invasive plants management on the Snowy Range and Sierra Madre mountain ranges within the Brush Creek/Hayden (BCH) and Laramie Ranger Districts of the Medicine Bow National Forest. It also discusses the effects of the No Action alternative. This proposed project would authorize vegetation management activities for the next 10-15 years and could authorize up to 95,000 acres of stand initiating or even-aged forest treatment methods, up to 165,000 acres of uneven-aged or intermediate forest treatments and up to 100,000 acres of other vegetation treatments such as prescribed fire, mastication and hand-thinning in forested and non-forested areas.

FOREST PLAN DIRECTION

Revised Land and Resource Management Plan for the Medicine Bow National Forest (USDA Forest Service 2003)

When appropriate or where necessary to meet resource management objectives, increase the amount of forests and rangelands restored to or maintained in a healthy condition with reduced risk and damage from fires, insects and diseases, and invasive species. (USDA Forest Service Strategic Plan 2000 Revision Objective 1.c)

Within 10 years, minimize or reduce the spread of noxious weeds and nonnative invasive species and implement measures that minimize new introductions.

Implement the Forest noxious weed control and implementation plan addressing awareness, prevention, inventory, planning, treatment, monitoring, reporting and management objectives.

Cooperate with appropriate public agencies and adjacent landowners.

Trailhead facilities, including signs, are well-maintained at all wilderness portals. Areas of overuse within wilderness areas are identified and appropriate management practices are put into place to attain wilderness goals. Noxious weeds and invasive non-native plants are inventoried, aggressively treated, and contained/reduced.

Noxious weed populations are being identified and mapped with the primary emphasis in preventing new noxious weed infestations while aggressively pursuing control and eradication of existing populations.

Standards 1. For all proposed projects or activities, determine the risk of noxious weed introduction or spread and implement appropriate mitigation measures. [R2 Desk Guide]

ENVIRONMENTAL CONSEQUENCES

Alternative 1 - No Action

The No Action Alternative assumes that the Modified Proposed Action would not be implemented within the analysis area. This alternative represents no attempt to actively respond to the issues, the purpose and need for action, or concerns identified during public scoping and public engagement sessions for this project. There would be no effort to modify existing conditions, unless authorized by other decisions. Current management plans would guide management of the project area and ongoing management programs would be implemented. These other projects would proceed under separate NEPA analyses or authorities.

Direct/Indirect Effects – No Action

Weed infestations continue to spread in areas where soils and/or vegetation are disturbed by a variety of activities and events on the Forest. Activities which can introduce and/or spread invasive plants are numerous and are listed in the cumulative effects segment of this report. Weeds have been increasing in coniferous stands over the past decade where tree mortality has been high due to the mountain pine beetle epidemic. In many of those stands more sunshine and water are available for understory plants, and we have seen that thistles and other invasive plant species have been some of the first species to take advantage of these new growing sites.

In addition dead and down trees could increase the potential for wildfires to spread and burn with increased intensity. This could lead to large areas of bare ground on which weeds could become established and compete with more desirable species. This hampers the ability of these communities to recover from intense fires. As a result, these infestations are likely to increase.

BCH and Laramie Districts have weed treatment programs that focus on noxious weeds listed by the State of Wyoming, but the program is not large enough (constrained by funding levels and manpower) to inventory and treat all known noxious weed infestations. In many locations, Canada thistle, one of the state listed noxious weeds, is not treated because it is so widespread in a variety of habitats. With a limited weed treatment budget we have prioritized treatment of more harmful noxious weed species and weed populations small enough that we have a chance at containment or eradication. Funds for inventory or treatment of other invasive plant species not listed as noxious may or may not be available in any given year due to fluctuations in funding and changes in overall program emphases within the Forest Service.

Cumulative Effects – No Action

The negative effects discussed above for the No Action Alternative are cumulative to the introduction and spread of noxious weeds and other invasive species from other disturbances and natural events on the Brush Creek/Hayden and Laramie Districts. Those other disturbances and natural events are listed in the cumulative effects section under the Modified Proposed Action and will therefore not be repeated here.

Alternative 2 – Modified Proposed Action

The Forest Service proposes to conduct vegetation management activities on NFS lands, including inventoried roadless areas, within the Sierra Madre and Snowy Range Mountain Ranges of the MBNF. Vegetation management activities, including prescribed fire, mechanical, and hand treatment methods, could be applied on up to 360,000 acres to make areas more resilient to future disturbance; protect, restore, and enhance forest ecosystem components; supply forest products to local industries; provide for human safety; reduce wildfire risk to communities, infrastructure, and municipal water supplies; and improve, protect, and restore wildlife habitat. Specific treatments would be developed and authorized for

implementation over a 10-year period beginning in 2019 and would be completed within approximately 15 years of the project decision. A combination of commercial timber sales, service contracts, stewardship contracts, cooperative authorities, partner capacity, and Forest Service crews would be used to implement the project.

The Modified Proposed Action is intended to address continually changing forest conditions by incorporating principles of adaptive management. In doing so, this alternative proposes an acreage ceiling of up to 360,000 acres that could be treated within pre-established Treatment Opportunity Areas (613,000 acres) rather than identifying site-specific treatment units. During project implementation, the Forest Service would cooperate with other agencies, local governments, interested stakeholders, and organizations to identify specific treatment units. Specific objectives of each treatment unit would be determined prior to any ground-disturbing activities using existing vegetation conditions and a series of project-developed field review forms. The sum of all treatments, regardless of roadless status, would not exceed 360,000 acres and would be dependent on such things as staffing, funding, site-specific resource conditions, and project design features.

Specific activities associated with the Modified Proposed Action include:

- Up to 95,000 acres of stand initiating or even-aged treatment methods.
- Up to 165,000 acres of uneven-aged or intermediate treatments.
- Up to 100,000 acres of other vegetation treatments, including prescribed fire, mastication, and hand thinning.
- Constructing not more than 600 miles of temporary road, as necessary, to access treatment areas.

Adaptive Management Treatment Options

A variety of management options including, but not limited to, clearcutting/coppice; group and individual tree selection; salvage; mastication; sanitation; thinning; and prescribed fire would be used to achieve resource objectives identified for individual treatments.

Inventoried Roadless Areas

Roughly 125,200 acres of Inventoried Roadless Areas (IRAs) have been identified as potential Treatment Opportunity Areas (TOAs). No temporary road construction would occur in IRAs.

Road/Access Information

The Modified Proposed Action includes constructing no more than 600 miles of temporary road, as necessary, to access treatment areas. Temporary roads would be for administrative use only (i.e., they would be managed as closed to the public) and would be reclaimed within 3 years of project completion preclude future motorized use and to restore ecological function in the affected area. Methods for reclaiming temporary roads may include, but are not limited to, re-contouring the road, ripping/scarifying the roadbed, removing culverts, installing drainage features, creating physical barriers to preclude motorized travel, scattering wood/rock debris onto the road, applying seed and mulch to the area, and posting signs.
The alternative also includes utilizing and/or reconstructing existing open and closed NFS roads to access treatment units. Reconstruction may include road blading, culvert installation or replacement, and gravelling. Closed NFS roads would be for administrative access only and would be returned to a closed status with the method of closure being determined at implementation.

Other Activities

Other activities associated with the Modified Proposed Action include, but are not limited to slash treatments (e.g., pile burning, chipping), regeneration surveys, noxious weed control, native grass/forb seeding, and road maintenance associated with implementing vegetation treatments.

Project Design Features and Analysis Assumptions

Project Design Features (PDFs) and Analysis Assumptions have already been developed for the LaVA Project to reduce or prevent potential undesirable effects resulting from management activities and to ensure consistent analysis of project effects, respectively. Project Design Features were developed using guidance from such documents as the State of Wyoming Best Management Practices, Watershed Conservation Practices, Revised Land and Resource Management Plan for the Medicine Bow National Forest (Forest Plan) standards and guidelines, and other environmental protections required by applicable laws, regulations, and policies. The PDFs and Analysis Assumptions specific to the LaVA project are included in the project files.

The following modifications have been made to the Proposed Action to address concerns raised during the July 2017 scoping effort:

- Eliminating the 10 miles of permanent road construction proposed in the July 2017 Scoping Document
- Developing a new TOA map to better reflect where temporary road construction is and is not allowed, per Forest Plan direction.

Direct/Indirect Effects – Modified Proposed Action

Ground disturbance associated with mechanical timber treatments will create an environment favorable to invasive plant species above what may have been created in unharvested/unburned coniferous forest. In untreated forest stands the undisturbed duff layer may inhibit some invasive species establishment. However, mechanical treatments would likely disturb some of that duff layer and expose mineral soil, where invasive plants are well adapted to establish. Roads and the movement of equipment in and out of these areas also facilitates weed establishment.

Long term, regenerating trees will eventually shade out many invasive species in tree harvest units, however, until then, noxious weed infestations could dominate the landscape and produce thousands of seeds annually that could easily be transported by various vectors to other sites.

Where log decks, landings, burn piles or temporary roads are located on shrubland or grassland sites, the risk of establishment of persistent noxious weed populations is higher than in formerly forested areas. On shrubland or grassland sites where harvest-related activities have compacted or disturbed the soil and damaged native plants, there is a greater risk of long term weed occupation, unless the site is treated, because the native vegetation on such sites will not shade out weeds.

Prescribed fire may increase the likelihood of invasive species establishment since it kills some plants (like big sagebrush) and temporarily sets back the growth of others. This disturbance to the native plant community, increased bare soil and increased nutrients from burned plant material and decomposing roots of killed plants creates a favorable environment for invasive plants. On some shrubland sites, particularly those on steep southerly facing slopes, the risk of cheatgrass invasion is high, as exhibited by exiting cheatgrass infestations on both past wildfires and prescribed burns on both districts. Design criteria for this project require that prescribed burns be managed to promote native species and hinder weed species establishment. As part of that goal, areas may be excluded from prescribed burning if they harbor invasive species likely to proliferate after burning, and burned areas must be treated post-burn to minimize spread of weeds where needed.

Removal of dead and downed trees through timber harvest and creation of a mosaic of early, mid and late successional shrubland and aspen stands through fire or mechanical means may decrease the likelihood of large wildfires. Since wildfires often burn hot and kill native plant communities and consume plant litter and organic matter in the soil, they can result in large, long term, weed infestations. The potential for weed spread and establishment in areas burned by wildfires is often greater and longer lasting than what would result from timber harvest, other mechanical treatments or prescribed fire. A mosaic of recently burned shrublands and older shrublands could reduce the chances that a wildfire in shrublands would quickly spread over a large area, because the amount of shrub canopy cover of

recently burned sites would be lower and shrubs would be more widely spaced than in an older shrub stand. Not only does wildfire often produce higher mortality of perennial plants than in prescribed burns, but it can also consume much of the organic matter in the soils, substantially delaying recovery of plant communities that can provide competition to weed species, helping curtail their spread.

This project includes several design features which will reduce the likelihood of introduction of new weed species or populations and slow their spread. Additional funds for noxious weed treatment may become available from timber sale proceeds, however, it is likely the funds made available through timber sale receipts, combined with the regular annual district noxious weed treatment program will not be enough to fully inventory and treat all new or enlarged weed infestations from a large scale timber harvest program and all the other sites and means by which invasive weeds may be introduced or spread.

Cumulative Effects – Modified Proposed Action

Effects of past timber sales and prescribed burns in and around the project area are cumulative to the effects of the proposed action. Currently, quite a few timber sales are in the late planning or implementation stage on the west and north portions of the Sierra Madre, in the Ryan Park area of the west Snowy Range, along with the southeast portion of the Snowy Range. Where disturbed soil from past activities has allowed invasive species to become established, a ready seed source exists to colonize newly disturbed areas. All activities that create soil disturbance and/or weaken native plant communities contribute to the problem of invasive plant species. Those activities and events in addition to timber harvest and prescribed burning, which can introduce and/or enable establishment and spread of invasive plant species are numerous and include, but are not limited to:

- Forest visitors and their vehicles, livestock, pets and gear, which can introduce weed seeds or spread existing infestations
- Illegal off-road motorized travel
- Livestock carrying weed seed in manure, or on their feet or hides. Livestock shipped in from distant areas may bring new weed species not already found in our area.
- Livestock trampling vegetation in localized areas such as around salt blocks, gates, and watering areas so that bare soil exists for weed establishment.
- Fence construction or re-construction and cattleguard installation
- Road maintenance such as grading, graveling, culvert installation and cleaning
- Ditch maintenance that involves digging out or spraying willows, sediment removal, bank repairs
- Wildlife carrying seed in manure or on their feet or fur
- Wildfire which creates bare soil for weed establishment
- Road decommissioning that involves soil disturbance such as ripping, berming or removal of culverts
- Landslides and slumps that expose bare ground
- Large scale tree mortality that increases sunlight and moisture for herbaceous plants in conifer forests which formerly had little herbaceous understory or a simple plant community of shade-tolerant species.
- Repeated weed treatments (mechanical or herbicide) to eradicate high priority weeds where the native plant community on that site is weakened or killed by those treatments.
- Seeding disturbed ground with seed that contains contaminants of invasive species seed (on Forest Service land or privately owned inholdings). Even certified noxious weed seed free seed can contain seed of other invasive species not listed as noxious by the State of Wyoming.
- Use of gravel, rock, mulch or other construction or erosion control material contaminated with weed seed

Past effects of treatments of shrublands through prescribed fire or herbicide application are cumulative to effects from prescribed fire treatments proposed in this project. BCH and Laramie districts conducted some relatively large scale aerial spraying of 2,4-D herbicide to kill big sagebrush 50-60 years ago and have implemented quite a few prescribed burns on shrublands along the Forest Boundary since that time. Because some past treatments have enabled cheatgrass to become dominant or co-dominant on some shrubland sites, they have increased the amount of cheatgrass seed available to colonize new burn

areas. Cheatgrass seed is readily transported by vehicles, livestock, wildlife and people who travel through infested areas.

Comparing Magnitude of Effects by Accounting Unit

The table below provides some metrics regarding rangeland infrastructure and invasive species within the accounting units to illustrate differences among them. Because this project has not yet defined specific treatment units and weed species and infestation acreages vary among the accounting units we cannot effectively predict and compare the magnitude of likely changes in invasive species infestations among the accounting units.

Accounting Unit	Invasive Annual Grasses	Noxious Weeds
	Estimated acres of cheatgrass infestations (not a complete inventory)*	Estimated acres of noxious weed infestation (not a complete inventory)*
Battle Pass	4	241
Rock Morgan	0	219
Owen Sheep	800	753
North Corner	6	952
French Douglas	28	2026
Fox Wood	265	2600
Bow Kettle	0	207
West French	34	1661
Cedar Brush	5	1202
Pelton Platte	368	1591
Big Blackhall	329	875
Green Hog	31	804
Jack Savery	2	1240
Sandy Battle	474	9934

*A complete inventory of invasive grasses or noxious weeds has not been conducted on the Districts, as this would require a large scale, multi-year effort for which funds have not been available. Instead, invasive species are noted and mapped while conducting other National Forest work including during weed treatment activities. Also, weed locations and densities change annually as a result of spread of untreated existing weed populations, arrival and

germination of additional weed seed, new disturbances to soils and native plant communities, and the effects of weed treatments.

REFERENCES

USDA Forest Service. 2003. Medicine Bow National Forest Final Environmental Impact Statement for the Revised Land and Resource Management Plan. Rocky Mountain Region, Denver, CO.